4.14 ENERGY AND MINERAL RESOURCES

This section describes energy and mineral resources such as natural gas, oil, and sand and gravel in the vicinity of the proposed Project and evaluates the impacts that the Project and its Alternatives may have on these resources.

The analysis focuses upon area energy and mineral resources that could be affected by the construction and operation of primary Project components, including the construction and operation of Wells 421-1 and 421-2. This analysis also briefly discusses area resources that could be affected by the operation of secondary Project components (existing facilities not proposed for modification) such as the operation of the EMT. For a full discussion of such resources, see the EMT EIR.

Potential impacts to energy and mineral resources created by the Project and proposed Alternatives are based on a change from existing conditions. Significance criteria are used to assess the significance of the impacts, and whether MMs can be applied to reduce the level of significance.

This document utilized information from the California Energy Commission (CEC), city of Goleta 2006 MND (06-MND-001), and Santa Barbara County 2001 MND (01-ND-34) and incorporates by reference the conclusions of the EMT EIR regarding area mineral and energy resources and the potential impacts on such resources associated with operation of the EMT and summarize these where appropriate.

4.14.1 Environmental Setting

Regional Overview

California largely relies on electricity, natural gas, and petroleum-based fuels for its energy. Table 4.14-1 summarizes the State's energy sources, their production, and consumption in California.

Electricity production in California is largely fueled by natural gas, hydropower, and nuclear energy. Other energy sources used to produce electricity include coal, solar and wind power, biomass/waste, geothermal energy, and oil (CEC 2005). Electricity produced with natural gas as a fuel accounts for more than 37.7 percent (108,686 Gigawatt-hours/year (GWh)/year) of all electricity produced in the State. Oil as fuel for electricity production is being phased out in the State.

Table 4.14-1. California Energy Sources and Annual Consumption in 2005

Type of Energy Source	Produced In-State	Imported (from Other U.S. States or Foreign)	Total Consumed
Electricity (Gigawatt-hours)	225,788 (78.3%)	62,456 (21.7%)	288,245
Natural Gas (million cubic feet)	873 (15.0%)	5,011 (85.0%)	5,884
Oil to refineries (1,000 barrels)	266,052 (39.46%)	408,224 (60.55%)	674,276

Source: CEC 2006.

California is one of the top oil producing states in the nation, currently ranked fourth behind Louisiana, Texas, and Alaska, respectively. In 2004, crude oil production averaged 731,150 barrels per day, down approximately 4.7 percent from the 2003 production level. Oil production in the State has declined to levels not seen since 1943.

The CEC has forecasted as the population in California grows over the next few years, electricity consumption will steadily increase at a rate of 1.84 percent annually, depending on the energy resource and prediction method (CEC 1998, 1998 BASELINE ENERGY OUTLOOK, CEC Staff Report, Appendix A: Electric Consumption Data).

Several minerals are mined in California; however, there are no known mineral resources in the Project area (City of Goleta 2004; Santa Barbara County 2004).

4.14.2 Regulatory Setting

Federal

Title 10 of the CFR addresses energy consumption and the establishment of the Department of Energy. Issues addressed by Title 10 include:

- State energy programs;
- Energy conservation programs;
- Energy efficiency of industrial and commercial products;
- Alternative fueled vehicles;
- Power plant regulations;
- Department of Energy provisions; and
- Nuclear Regulatory Commission and Nuclear facilities.

Title 18 of the CFR addresses the Federal Energy Regulatory Commission (FERC), which handles issues related to natural gas and oil transportation, provisions, and tariffs.

Title 30 of the CFR establishes the MMS, which manages energy resources in the Federal OCS.

State

The CEQA Guidelines Appendix F includes state guidelines for the discussion of energy conservation. In addition to the CEQA, there are other acts and regulations that govern energy production, utilization, conservation, and development of new energy sources.

The State of California adopted the Warren-Alquist Act in 1974 to encourage conservation of non-renewable energy resources. The State Energy Resources Conservation and Development Commission was created as a result of this Act. This Act has been codified in the Public Resources Code – Division 15, Energy Conservation and Development. Other State statutes related to efficient utilization of energy resources and energy conservation include:

- Financial Code – Division 15.5,
    - § 32000 et seq. State Assistance Fund for Energy, California Business and Industrial Corporation;
- Government Code – Title 2,
    - § 14450 et seq. Part 5, Chapter 4 – California Transportation Research and Innovation Program;
    - § 15814.10 et seq. Part 10b, Chapter 2 – Energy Conservation in Public Buildings;
    - § 15814.30 et seq. Part 10b, Chapter 2.8 – Energy Efficiency in Public Buildings;
- Public Resources Code – Division 3,
    - § 3800 et seq., Chapter 6 – Disposition of Geothermal Revenues; Public Resources Code – Division 6;
    - § 6801 et seq. Part 2, Chapter 3 – Oil and Gas and Mineral Leases; Public Resources Code – Division 16;

- o § 26000 et seq. – California Alternative Energy Source and Advanced Transportation Authority Act;

- Public Resources Code – Division 16.5,
  - o § 26400 et seq. – Energy and Resources Fund;
- Public Utilities Code – Division 1,
  - o § 330 et seq. Part 1, Chapter 2.3 – Electrical Restructuring;
  - o § 445 et seq. Part 1, Chapter 2.5 – Public Utilities Commission Reimbursement Fees;
  - o § 701 et seq. Part 1, Chapter 4 – Regulation of Public Utilities;
  - o § 1001 et seq. Part 1, Chapter 5 – Certificates of Public Convenience and Necessity;
  - o § 2801 et seq. Part 2, Chapter 7 – Private Energy Producers;
- Revenue and Taxation Code – Division 2,
  - o § 40001 et seq. Part 19 – Energy Resources Surcharge Law;
- Vehicle Code – Division 3,
  - o § 5205.5 and 21655.9 et seq. – Vehicle Code;
- Vehicle Code – Division 12,
  - o § 28110 et seq. – Chapter 5, Article 16 – Methanol or Ethanol Fueled Vehicles.

The California Department of Conservation is the primary agency with regard to mineral resource protection. The Department is charged with conserving earth resources (Public Resources Code § 600-690) and has five program divisions that address mineral resource issues:

- Division of Mines and Geology;
- Division of Oil, Gas, and Geothermal Resources;
- Division of Land Resource Protection;
- Division of Recycling; and

- Office of Mine Reclamation.

The State Mining and Geology Board develops policy direction regarding the development and conservation of mineral resources and reclamation of mined lands.

Other State agencies with statutory authority with regard to mineral resources issues include:

- Coastal Commission (for land uses that could affect access to mineral resources within the Coastal Zone);
- SWRCB (as pertains to mineral resource water quality-related issues); and
- Energy Commission.

Local

The Santa Barbara County Energy Division regulates energy sector development (oil and gas development in particular) through the Local Coastal Plan. The Santa Barbara County Energy Division is acting as a consultant to the city of Goleta for the proposed Project. In the coastal zone, priority is given to coastal-dependent projects, including oil and gas projects that involve offshore oil and gas resources and facilities. In addition, priority is also given to efficient harnessing of energy through recommendations provided in the Energy Element of the Santa Barbara Comprehensive Plan.

The 1990 UCSB LRDP was established to identify the physical development necessary to achieve the Campus' academic goals and provide a land use plan to guide the development of future facilities. The LRDP is also intended to respond to the provisions of the California Coastal Act of 1976, with respect to the preparation of Long Range Development Plans for Campuses in the Coastal Zone. The LRDP includes guidelines for energy conservation on university property in § 30253, which states "New development shall minimize energy consumption and vehicle miles traveled." Additionally, the LRDP addresses energy conservation for new buildings development and alternative transportation policies.

4.14.3 Significance Criteria

Under CEQA, a significant impact would occur if the Project would:

- Result in the loss of availability of a known energy or mineral resource (i.e., oil) that would be of value to the region and the residents of the State;

- Conflict with the adopted California energy conservation plans;
- Use non-renewable energy resources in a wasteful and inefficient manner;
- Result in a substantial increase in demand upon existing power or natural gas utilities; or
- Result in a need for new systems or supplies or substantial alterations to the existing power and natural gas utilities.

4.14.4 Impact Analysis and Mitigation

The proposed Project would produce crude oil for delivery to markets in the San Francisco and Los Angeles areas. As discussed in Section 2.4.3, production from PRC 421 is expected to average no more than 700 BOPD in the first year, tapering off to approximately 100 BOPD by year 12. If implemented, the proposed Project is anticipated to produce a total of 1.4 million barrels over the lifetime of the Project.

Operations at PRC 421 would use electricity to operate the drilling equipment and operational and safety controls. Electric power for the Project would be obtained from the existing Southern California Edison (SCE) electric grid system, via electricity lines that would be extended from the EOF. It is projected that the proposed Project would have an electric power consumption rate of 80 kilowatts (kW).

Implementation of the Project would increase fossil fuel consumption from operation of construction equipment and transport of the produced crude to markets in the Los Angeles and San Francisco Bay areas. Currently, the EMT and operations of the barge Jovalan consume, on average, 72,000 to 190,000 gallons per year of diesel fuel. The range in the amount of fuel consumed per year is due to variations in the barge travel destinations to either Los Angeles or San Francisco. Consumption during transportation includes fuel use by the tug and assist vessels that propel the barge, by the internal combustion engines on the barge Jovalan that are part of the vapor recovery system, and the emergency response vessel that is present while the barge Jovalan is loaded.

Impact EMR-1: Increase in Electricity Use

The proposed Project would cause a less than significant increase in electricity use (Less than Significant, Class III).

Impact Discussion

The proposed Project would cause an increase in electricity use in the area due to operation of electrical oil production equipment. The expected total electricity usage by the Project facilities is approximately 80 kW, or 0.701 GWh/year. These numbers are estimated assuming the equipment runs 24 hours a day and 365 days per year.

This increase in electricity use is negligible compared to the 2,750 GWh/year consumed in Santa Barbara County or 250,310 GWh/year consumed within the State of California (CEC 2000). Therefore, the Project would have adverse, but less than significant impacts (Class III) on electrical energy resources.

Mitigation Measures

None required.

Impact EMR-2: Increase in Fossil Fuel Consumption

The proposed Project would increase the amount of fossil fuel consumption of diesel fuel associated with barge Jovalan (Less than Significant, Class III).

Impact Discussion

The proposed Project would add at the most 4.7 barge trips per year to current levels. This would correspond to an annual increase in fuel consumption of up to 20,222 barrels. Given that California residents consume approximately 121.5 million barrels of distillate fuel each year (Energy Information Administration [EIA] 2006), the increase in fuel consumption associated with the proposed Project would be less than significant.

Mitigation Measures

None required.

Impacts Related to Future Transportation Options

For the purposes of this energy resources analysis, it is assumed that Line 96 and the EMT would be used to transport crude oil recovered from PRC 421 using the barge Jovalan to ship the oil to a Los Angeles or San Francisco Bay area refinery through approximately the year 2013. However, as discussed earlier in this EIR (Sections 1.2.4, 2.4.2, and 3.3.6), several options exist for future transportation of oil from the Project, each with different energy resources requirements. These include ongoing use of the EMT through 2013, use of a pipeline to Las Flores Canyon, and trucking of oil to

Venoco's ROSF Facility 35 miles to the south and subsequent transport to Los Angeles via pipeline. The potential energy resources impacts from transportation using the existing EMT system are fully described above (see Impact EMR-2).

The timing and exact mode of transportation of produced oil after the initial five years of Project operation are speculative at this point in time. However, transportation of crude oil by use of a pipeline or trucking is not expected to result in significant impacts to energy resources, as discussed in more detail in the alternatives analysis (Section 4.14.5). If neither transportation option is permitted or available by the cessation of operation of the EMT, production from PRC 421 would be stranded, at least temporarily, until an alternative transportation mode is approved and becomes available.

Table 4.14-2. Summary of Energy and Mineral Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
EMR-1: Increase in Electricity Use	None required.
EMR-2: Increase in Fossil Fuel Consumption	None required.

4.14.5 Impacts of Alternatives

No Project Alternative

Under the No Project Alternative, there would be no production at PRC 421, and the facilities would be decommissioned (under a separate evaluation). The No Project Alternative would avoid the majority of impacts associated with production, transfer, and transportation of crude oil produced from PRC 421. However, the Proposed Project would develop an energy resource that would otherwise remain unavailable under the No Project Alternative.

Specifics on decommissioning would be addressed in an Abandonment and Restoration Plan, and related impacts to energy resources would be evaluated in applicable environmental documentation such as an MND or an EIR. Energy requirements for the decommissioning of PRC 421 are unquantified and would be analyzed in a future environmental document.

No Project Alternative with Pressure Testing

Under the No Project Alternative with Pressure Testing, temporary production facilities and equipment would be installed at PRC 421 in order to allow for temporary oil production to permit flow pressure testing of the existing 421-2 well and the associated reservoir. Flow pressure testing would commence for a period of 6 to 12 months in

order to determine the potential of possible pressure increases in the reservoir upon permanent closure of the well at PRC 421. After testing is completed, recommendations would be provided on the ultimate disposition of the surf-zone facilities. Given that oil would only be produced for 6 to 12 months, electricity and diesel fuel consumption associated with this Alternative would be substantially less than the consumption described for the proposed Project. Production of crude would also be less. During the pressure testing period, 700 BOPD would be produced. Therefore, impacts to energy and mineral resources under this Alternative would be less than the proposed Project and less than significant.

Onshore Separation at the EOF

Under this Alternative, produced crude would be commingled with production from Platform Holly and no separation activities would take place at Pier 421-2. Given that the separation and processing systems at the EOF are not separate systems, under this Alternative, crude produced from the Project would undergo separation and processing. This could incrementally increase energy consumption for the Project; however, the same amount of diesel fuel would be used to transport the crude to market, therefore the incremental increase in energy consumption associated with processing the crude would not cause significant impacts to Energy and Mineral Resources. Further, electricity would not be required to power Pier 421-2, and although some electricity would be required to pump water to Platform Holly, it is expected that overall electricity consumption would be similar to that of the proposed Project. Impacts would be less than significant.

Under this Alternative, Pier 421-1 would not be required for water re-injection and the decommissioning of Pier 421-1 would be accelerated. The decommissioning would require submittal of a decommissioning plan of Pier 421-1 to the CSLC and the city of Goleta within approximately 6 months of approval of this Alternative. The potential effects of decommissioning the facilities would be evaluated in a separate analysis.

Recommissioning Using Historic Production Methods

Under this Alternative, production would resume at PRC 421 in its historic configuration at the time prior to the wells being shut-in in 1994 while incorporating new technologies to comply with current industrial and environmental standards. PRC 421 would utilize a gas-fired internal combustion engine to power the pump at Pier 421-2. This would reduce the electricity consumption of the Project, but increase the demand for diesel fuel; however, impacts would remain adverse, but less than significant.

Re-injection at Platform Holly

Under this Alternative, all aspects of the Project would remain the same with the exception that Pier 421-1 would be decommissioned and produced water would be transported via pipeline to Platform Holly and re-injected offshore rather than at 421-1. Therefore, electricity would not be required to power Well 421-1; however, electricity would be required to pump water to Platform Holly, which is located 1.9 miles southwest of Coal Oil Point. The increase in distance would increase the amount of electricity required to transport the water. All other impacts would be the same as described for the proposed Project, which are less than significant.

Under this Alternative, Pier 421-1 would not be required for water re-injection and the decommissioning of Pier 421-1 would be accelerated. The accelerated decommissioning would require submittal of a decommissioning plan for Pier 421-1 to the CSLC and the city of Goleta within approximately 6 months of approval of this Alternative. The decommissioning plan would be subject to further environmental review.

Transportation Sub-Alternative Options

Pipeline Sub-Alternative

This method of crude oil transportation would involve the construction of an onshore 6-inch-diameter crude-oil pipeline from the EOF to the All-American Pipeline at Las Flores Canyon. Project electricity consumption would increase due to pumping the crude oil to Las Flores Canyon. However, the increase is not expected to be significant. Overall, this method of crude oil transportation would not negatively affect energy resources.

Trucking Sub-Alternative

Under this sub-alternative, production would resume at PRC 421 as described in the proposed project; however, recovered crude oil would be transported via tanker trucks rather than by Barge Jovalan. The total one-way distance is approximately 35 miles. Assuming an average fuel mileage of 6 miles per gallon, the total diesel fuel consumed in a round trip would be approximately 12 gallons. The anticipated throughput from PRC 421 would initially require 5 round trips per day to transport crude oil from the EOF to the ROSF (see Section 3, Alternatives and Cumulative Projects, Table 3-2). This would result in an initial consumption by truck transport of 60 gallons of diesel fuel per day, and would decrease to one round trip and 12 gallons per day by the final years of production. Consumption of diesel by the tug, assist and emergency vessels, and the

Barge Jovalan vapor recovery system would cease in relation to the Project. This impact to energy resources would be adverse, but less than significant.

4.14.6 Cumulative Projects Impact Analysis

Because the Project is part of the energy resource production chain (crude oil transportation to a location where fuels are produced), it supplies energy to other projects that might be consumers of energy. Therefore, the project's cumulative energy impact would be beneficial, because it would help to partially offset increases in energy consumption.